



ANTOINETTE O'BRIEN

# COBALT

Element Symbol: **Co**

Atomic Number: **27**

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Cobalt is found naturally only in chemically combined form. The free element, produced by reductive smelting is described as a hard, lustrous, silver/grey metal.

Cobalt is known to have been used in Persian jewellery and Egyptian sculpture as long ago as the third millennium BC. In 1742 Swedish chemist Georg Brandt discovered that the source of this blue colour was the previously unidentified metal cobalt making it the first new metal discovered since the traditional metals known from antiquity.

The name “cobalt” derives from the German word Kobold, meaning “mischievous spirit” or “goblin”. Sixteenth-century copper miners in central Europe applied cobalt to gray metallic ores but failed to produce copper when roasted and caused the ores to emit dangerous fumes. It was found that the ores, after elimination of sulphur and arsenic by roasting, could be fused with sand to produce a blue glass called smalt.

Unlike its neighbors in the Periodic Table, iron, nickel, and copper, cobalt is not widespread in nature. It comprises only 0.0029% of the Earth’s crust.

Cobalt has a wide range of industrial uses. Its main use is in chemicals, particularly those used in catalysts, pigments, medical and agricultural agents, and nickel-cadmium (Ni-Cd) rechargeable batteries. Cobalt also has use in the preparation of magnetic, wear-resistant, and high-strength alloys. The radioisotope Cobalt-60 is a powerful gamma ray emitter used for radiotherapy and food irradiation to kill bacteria.

Biologically, cobalt is essential to all animals as it is a key constituent of vitamin B12.

*Provided by the element sponsor Karen Hunter*

## ARTISTS DESCRIPTION

Cobalt has been used from the outset in medical radiation treatment; my work depicts a sprouting skeleton. The toxicity of Cobalt effected miners who summoned the name originally ‘cobald’ meaning goblin, thereby associating the mining of cobalt with potential death. The regenerative aspects of the print are hand coloured to specifically pay tribute the decorative application of cobalt throughout the ages and throughout cultures around the world.

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